

In the Claims:

Claims 1 to 24 (Canceled).

1 25. (Currently amended) A composite material comprising a
2 plurality of discs (10) ~~made of that each respectively~~
3 ~~comprise a matrix material said discs (10) forming and that~~
4 ~~are arranged as~~ a stack, each said disc (10) of matrix
5 ~~material~~ in said stack further comprising: a radially inner
6 opening (11) surrounded by an inner disc edge and a disc
7 ring portion surrounding said inner opening and surrounded
8 by an outer disc edge, said disc ring portion comprising a
9 groove (13) and at least one reinforcing fiber (14)
10 embedded in said groove (13) thereby forming a fiber
11 reinforced disc ring section, said reinforcing fiber (14)
12 and said groove (13) being spaced radially outwardly from
13 said inner disc edge thereby forming an inner first disc
14 ring section free of reinforcing fiber, said reinforcing
15 fiber (14) and said groove (13) being spaced radially
16 inwardly from said outer disc edge thereby forming an outer
17 second disc ring section free of reinforcing fiber, said
18 fiber reinforced disc ring section being positioned between
19 said first and second disc ring sections free of
20 reinforcing fiber.

1 26. (Previously presented) The composite material of claim 25,
2 wherein said first disc ring section free of reinforcing

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3 fiber comprises a first radial width that is the same in
4 each disc in said stack, and wherein said second disc ring
5 section has a second radial width that differs in different
6 discs in said stack.

1 27. (Previously presented) The composite material of claim 25,
2 wherein said groove in each disc in said stack has a spiral
3 shape so that said reinforcing fiber (14) or fibers extend
4 spirally inside said fiber reinforced disc ring section.

1 28. (Previously presented) The composite material of claim 26,
2 wherein said second radial width that differs in different
3 discs is individually adapted for each disc in said stack.

1 29. (Currently amended) The composite material of claim 25,
2 ~~comprising~~ wherein said matrix material ~~[[as]]~~ comprises
3 titanium or a titanium alloy, and ~~comprising~~ said at least
4 one reinforcing fiber ~~[[as]]~~ comprises a silicon carbon
5 carbide fiber in each said disc in said stack.

1 30. (Previously presented) The composite material of claim 26,
2 wherein said second disc ring section free of reinforcing
3 fiber in one disc in said stack is overlapped by at least
4 one fiber reinforced disc ring section of at least one
5 neighboring disc in said stack at an interface between said
6 fiber reinforced disc ring section and said second disc
7 ring section free of reinforcing fiber.

1 31. (Previously presented) The composite material of claim 25,
2 wherein said groove or grooves in neighboring discs of said
3 stack are radially displaced relative to each other so that
4 said at least one reinforcing fiber in said groove or
5 grooves in a disc is radially staggered relative to
6 respective reinforcing fibers in neighboring discs in said
7 stack.

1 32. (Currently amended) A method ~~[[for]]~~ of producing ~~[[a]]~~ the
2 composite material ~~in the form of a stack of discs,~~
3 of claim 25, said method comprising the following steps:

- 4 a) ~~manufacturing a~~ providing said plurality of said discs
5 (10) of said matrix material,
6 b) forming at least one said groove (13) in each disc of
7 a number of discs in said plurality of discs (10),
8 c) inserting said at least one reinforcing fiber (14) in
9 each said groove (13) of a respective disc of said
10 number of discs,
11 d) consolidating each said disc with ~~[[a]]~~ said at least
12 one reinforcing fiber (14) in ~~[[its]]~~ said groove (13)
13 thereof so that ~~[[the]]~~ said at least one reinforcing
14 fiber (14) is surrounded on all sides and embedded in
15 said matrix material,
16 e) stacking consolidated discs to form said stack, and

17 f) joining each said disc in said stack to a neighboring
18 said disc or discs in said stack to form a solid
19 stack.

1 33. (Currently amended) The method of claim 32, further
2 comprising performing said step of manufacturing providing
3 by producing said plurality of discs (10) with ~~[[a]]~~ said
4 radially inner opening (11) surrounded by ~~[[an]]~~ said inner
5 disc edge, forming said at least one groove in ~~a disc~~
6 portion said fiber reinforced disc ring section with a
7 first spacing from said inner disc edge, and forming said
8 at least one groove in said ~~disc portion~~ fiber reinforced
9 disc ring section with a second spacing from ~~a radially~~
10 said outer disc edge of said disc (10) whereby ~~[[a]]~~ said
11 first disc ring section free of reinforcing fiber is formed
12 radially inwardly of said groove (13) and ~~[[a]]~~ said second
13 disc ring section free of reinforcing fiber is formed
14 radially outwardly of said groove, so that said ~~disc~~
15 portion fiber reinforced disc ring section with said at
16 least one groove (13) therein is positioned between said
17 first and second disc ring sections free of reinforcing
18 fiber.

1 34. (Previously presented) The method of claim 32, further
2 comprising performing said step of forming by making said
3 groove (13) to a depth, in an axial direction, larger than
4 a diameter of said at least one reinforcing fiber (14) so

5 that lands (15) project above said at least one reinforcing
6 fiber (14) inserted in said groove.

1 35. (Currently amended) The method of claim 32, further
2 comprising performing said step of consolidating each said
3 disc (10) with said at least one reinforcing fiber (14) in
4 ~~[[its]]~~ said groove (13) thereof by exposing said disc to
5 a superplastic deformation so that said fiber is enclosed
6 on all sides by said matrix material.

1 36. (Currently amended) The method of claim 33, wherein said
2 step of stacking is performed so that each said radially
3 inner opening (11) of each said disc in said stack is
4 axially aligned with all other said radially inner openings
5 to thereby form a hollow cylinder.

1 37. (Currently amended) The method composite material of claim
2 ~~33, further comprising forming 25, wherein said at least~~
3 ~~one groove with at least two different radial dimensions in~~
4 ~~two grooves in successive neighboring ones of said discs in~~
5 ~~said stack respectively extend radially outwardly to two~~
6 ~~different radial dimensions in alternating succession in~~
7 ~~said successive neighboring disks, so that said disc~~
8 ~~portion with said at least one groove (13) therein reaches~~
9 ~~radially outwardly to different extents in said two~~
10 ~~neighboring discs in said stack whereby said second disc~~
11 ~~ring section sections free of reinforcing fiber intermeshes~~

12 in said successive neighboring disks intermesh with said
13 disc portion fiber reinforced disc ring sections having
14 said at least one groove therein in said successive
15 neighboring disks for an increased strength of said stack.

1 38. (Previously presented)) The method of claim 32, wherein
2 said step of joining is performed as a diffusion welding of
3 stacked discs (10) to form said solid stack.

1 39. (Currently amended) The method of claim 32, further
2 comprising inspecting each said disc, following said
3 consolidating step and before said stacking step, for any
4 breaks in said reinforcing fiber or fibers and for any
5 cracks in said matrix material, and discarding any said
6 disc in which a break or a crack is discovered.

1 40. (New) A composite material article comprising a plurality
2 of annular ring-shaped composite discs arranged axially
3 aligned with one another and stacked successively to form
4 a stack of said discs, wherein:

5 each respective disc of said plurality of composite
6 discs respectively comprises an annular ring of a matrix
7 material including an inner ring portion bounding a central
8 axial hole of said disc, an outer ring portion bounded by
9 an outer periphery of said disc, and an intermediate ring
10 portion between said inner and outer ring portions;

each said respective disc respectively further comprises at least one reinforcing fiber that extends in a direction around said central hole in said intermediate ring portion, and said outer ring portion of said matrix material does not include said at least one reinforcing fiber therein; and

each said respective disc is respectively bounded by first and second annular surfaces, and said at least one reinforcing fiber is embedded in said matrix material between and axially displaced away from said first and second annular surfaces, in that a groove deeper than a diameter of said at least one reinforcing fiber was provided in said matrix material of said intermediate ring portion, said at least one reinforcing fiber was disposed in said groove, and said matrix material was consolidated and deformed to close said groove around said at least one reinforcing fiber.

41. (New) The composite material article according to claim 40, wherein said discs are loosely stacked on one another in said stack and are not yet joined to one another.

42. (New) The composite material article according to claim 40, wherein said discs are joined to one another in said stack by diffusion welding.

1 43. (New) The composite material article according to claim 40,
2 wherein said intermediate ring portions containing said
3 reinforcing fibers of successive neighboring ones of said
4 discs in said stack have successive alternating larger and
5 smaller outer diameters relative to one another so as to
6 form a crenelated intermeshing between said outer ring
7 portions and said intermediate ring portions of said
8 successive neighboring discs.

1 44. (New) The composite material article according to claim 40,
2 wherein said groove and said at least one reinforcing fiber
3 extend along a spiral path around said central hole.

[RESPONSE CONTINUES ON NEXT PAGE]

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